

**IN THE UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF TEXAS  
MARSHALL DIVISION**

**Valtrus Innovations Ltd. and  
Key Patent Innovations Ltd.,**

**Plaintiffs,**

**v.**

**Digital Realty Trust, Inc.  
and  
Digital Realty Trust, L.P.,**

**Defendants.**

§  
§  
§  
§  
§  
§  
§  
§  
§  
§

**CIVIL ACTION NO. 2:24-cv-00950**

**JURY TRIAL DEMANDED**

**COMPLAINT FOR PATENT INFRINGEMENT AND JURY DEMAND**

Plaintiffs Valtrus Innovations Limited (“Valtrus”) and Key Patent Innovations Limited (“KPI”) (collectively, “Plaintiffs”), by and through its undersigned counsel, bring this complaint for patent infringement and damages against Defendants Digital Realty Trust, Inc. and Digital Realty Trust, L.P. (collectively “Digital Realty” or “Defendants”) and would respectfully show the Court as follows:

**PARTIES**

1. Plaintiff Valtrus is the successor-in-interest to a substantial patent portfolio created by Hewlett Packard Enterprise and its predecessor, subsidiary, and affiliate companies including Hewlett-Packard Development Company, L.P. (collectively, “HPE”). Valtrus is an Irish entity duly organized and existing under the laws of Ireland. The address of the registered office of Valtrus is: The Glasshouses GH2, 92 Georges Street Lower, Dun Laoghaire, Dublin A96 VR66, Ireland. HPE’s worldwide corporate headquarters is located in Houston, Texas. One of HPE’s primary U.S. facilities is located in Plano, Texas.

2. Plaintiff KPI is the beneficiary of a trust pursuant to which Valtrus owns, holds, and asserts the Asserted Patents. KPI is an Irish entity duly organized and existing under the laws of Ireland. The address of the registered office of KPI is: The Glasshouses GH2, 92 Georges Street Lower, Dun Laoghaire, Dublin A96 VR66, Ireland.

3. On information and belief, Digital Realty Trust, Inc. is a corporation organized and existing under the laws of the State of Maryland, with a principal place of business at 5707 Southwest Parkway, Building 1, Suite 275, Austin, Texas 78735. Digital Realty Trust, Inc. has a regular and established place of business at its DFW11 Data Center at 4025 Midway Road, Carrollton, TX 75007, and at its DFW26 Data Center at 2501 State Highway 121, Lewisville, TX 75056. On information and belief, Digital Realty Trust, Inc. may be served with process through its registered agent at National Registered Agents, Inc., 1999 Bryan St., Suite 900, Dallas, TX 75201.

4. On information and belief, Digital Realty Trust, L.P. is a corporation organized and existing under the laws of the State of Maryland, with a principal place of business at 5707 Southwest Parkway, Building 1, Suite 275, Austin, Texas 78735. On information and belief, Digital Realty Trust, Inc. is the sole general partner in Digital Realty Trust, L.P., owns all of the preferred limited partnership interests, and has full, exclusive, and complete responsibility for Digital Realty Trust, L.P.'s day-to-day management and control. Digital Realty Trust, L.P. has a regular and established place of business at its DFW11 Data Center at 4025 Midway Rd Carrollton, TX 75007, and at its DFW26 Data Center at 2501 State Highway 121, Lewisville, TX 75056. On information and belief, Digital Realty Trust, L.P. may be served with process through its registered agent at National Registered Agents, Inc., 1999 Bryan St., Suite 900, Dallas, TX 75201.

**PATENTS IN SUIT**

5. Plaintiff Valtrus is the assignee of and owns all right and title to U.S. Patent Nos. 6,854,284 (the “’284 Patent”); 6,868,682 (the “’682” Patent); and 7,251,547 (the “’547 Patent”) (collectively, “the Asserted Patents”).

6. The Asserted Patents were developed by inventors working for HPE. HPE developed numerous innovative and diverse technologies, including groundbreaking inventions pertaining to data center cooling, analytics for monitoring conditions in data centers, and structural organization of data centers.

7. The ’284 Patent, entitled “Cooling of data centers,” was duly and lawfully issued on February 15, 2005. A true and correct copy of the ’284 Patent is attached hereto as Exhibit 1.

8. The ’284 Patent was in full force and effect since its issuance. Valtrus owns by assignment the entire right and title in and to the ’284 Patent, including the right to seek damages, including past damages, for any infringement thereof.

9. The ’682 Patent, entitled “Agent based control method and system for energy management,” was duly and lawfully issued on March 22, 2005. A true and correct copy of the ’682 Patent is attached hereto as Exhibit 2.

10. The ’682 Patent was in full force and effect since its issuance. Valtrus owns by assignment the entire right and title in and to the ’682 Patent, including the right to seek damages, including past damages, for any infringement thereof.

11. The ’547 Patent, entitled “Correlation of vent tile settings and rack temperatures,” was duly and lawfully issued on July 31, 2007. A true and correct copy of the ’547 Patent is attached hereto as Exhibit 3.

12. The '547 Patent has been in full force and effect since its issuance. Valtrus owns by assignment the entire right and title in and to the '547 Patent, including the right to seek damages, including past damages, for any infringement thereof.

### **JURISDICTION AND VENUE**

13. Plaintiffs incorporate by reference paragraphs 1-12 herein.

14. This civil action arises under the patent laws of the United States, 35 U.S.C. § 1 *et seq.*, including without limitation 35 U.S.C. §§ 271, 281, 283, 284, and 285. This is a patent infringement lawsuit over which this Court has subject matter jurisdiction under, *inter alia*, 28 U.S.C. §§ 1331, 1332, and 1338(a).

15. This District has general and specific personal jurisdiction over Digital Realty because, directly or through intermediaries, Digital Realty has committed acts within this District giving rise to this action; is present in and transacts and conducts business, directly, and/or indirectly, in this District and the State of Texas; and transacts and conduct business with residents of this District and the State of Texas.

16. Plaintiffs' causes of action arise, at least in part, from Digital Realty's contacts with and activities in and/or directed at this District and the State of Texas.

17. Digital Realty has infringed the Asserted Patents within this District and the State of Texas by making, using, selling, offering for sale, and/or importing in or into this District and elsewhere in the State of Texas, products and services covered by claims in the Asserted Patents, including without limitation products that, when made or used, practice the claimed methods of the Asserted Patents. Digital Realty, directly and through intermediaries, makes, uses, sells, offers for sale, imports, ships, distributes, advertises, promotes, and/or otherwise commercializes such infringing products and services in or into this District and the State of Texas. Digital Realty

regularly conducts and solicits business in, engages in other persistent courses of conduct in, and/or derives substantial revenue from goods and services provided to residents of this District and the State of Texas.

18. This Court has personal jurisdiction over Digital Realty pursuant to TEX. CIV. PRAC. & REM. CODE § 17.041 *et seq.*

19. Venue is proper in this District under 28 U.S.C. §§ 1391(b)-(c) and 1400(b).

20. Digital Realty is doing business, either directly or through respective agents, on an ongoing basis in this Judicial District and elsewhere in the United States, and has committed acts of infringement in this district. Digital Realty has a regular and established place of business in this Judicial District, including at its DFW11 Data Center at 4025 Midway Rd Carrollton, TX 75007, and at its DFW26 Data Center at 2501 State Highway 121, Lewisville, TX 75056. On information and belief, Digital Realty makes, uses, sells, offers to sell, and/or imports infringing products into and/or within this District, including at its DFW11 and DFW26 Data Centers. Digital Realty maintains a permanent and/or continuing presence within this District at its DFW11 and DFW26 Data Centers, and has the requisite minimum contacts with this District such that this venue is a fair and reasonable one. Upon information and belief, Digital Realty has transacted and, at the time of the filing of the Complaint, is continuing to transact business within this District.

### **FIRST CLAIM**

#### **(Infringement of the '284 Patent)**

21. Plaintiffs re-allege and incorporate herein by reference the foregoing paragraphs of the Complaint.

22. The '284 Patent is generally directed to systems and methods for cooling racks in a data center. Claim 10, for example, recites a “method of cooling a plurality of racks in a data

center.” Claim 10 further recites “activating a cooling system and opening a plurality of returns, said plurality of returns being configured to remove cooling fluid from various locations of said data center, said plurality of returns also being in fluid communication with a plenum, wherein cooling fluid is configured to flow through the plurality of returns through the plenum and into the cooling system.” Claim 10 further recites “sensing a pressure of said cooling fluid in the plenum.” Claim 10 further recites “determining whether said sensed pressure is within a predetermined pressure range.” Claim 10 further recites “varying an intake of said cooling system through the plurality of returns in response to said sensed pressure falling outside of said predetermined pressure range.”

23. Digital Realty practices every element of Claim 10 of the ’284 patent.

24. For example, Digital Realty operates at least 13 data centers in the Dallas area<sup>1</sup> and throughout the United States where it provides cooling to racks in the data centers in accordance with the method of Claim 10.<sup>2</sup>

25. On information and belief, Digital Realty uses cooling systems (e.g. Computer Room Air Handling or “CRAH” units) and opens returns (e.g., hot air returns) to remove cooling fluid (e.g., hot air) from various locations of its data centers.<sup>3</sup> The hot air returns are in fluid communication with a plenum (e.g., return air plenum), and the hot air is configured to flow through the returns, through the plenum, and into the CRAH units for cooling the air, as shown in the image below of a Digital Realty data center.<sup>4</sup>

---

<sup>1</sup> Digital Realty, <https://www.digitalrealty.com/data-centers/americas/dallas>

<sup>2</sup> Mark Fontecchio, *Mastering Data Center Climate Cooling*, [https://media.techtargt.com/Syndication/NATIONALS/SearchDataCenter\\_Handbook2\\_FINAL.pdf](https://media.techtargt.com/Syndication/NATIONALS/SearchDataCenter_Handbook2_FINAL.pdf)

<sup>3</sup> *Id.*

<sup>4</sup> DPR Construction, *Digital Realty 1500 Space Park Data Center*, <https://www.dpr.com/projects/1500-space-park-data-center>



26. On information and belief, Digital Realty senses a pressure of the cooling fluid in the plenum and determines whether the sensed pressure is within a predetermined pressure range. Digital Realty then varies an intake of the cooling system through the returns in response to the sensed pressure falling outside of the predetermined pressure range.

27. For example, in Digital Realty’s data centers, “[c]ontained spaces within a data center, such as hot and cold aisles,” are “controlled or monitored with pressure sensors,” and “[f]ans within the cooling systems” are “controlled with respect to pressure[] setpoints.”<sup>5</sup>

28. Digital Realty has, under 35 U.S.C. § 271(a), directly infringed, literally and/or under the doctrine of equivalents, one or more claims, including without limitation at least claim 10 of the ’284 Patent, by making, using, selling, offering for sale, and/or importing systems in its data centers for cooling, or otherwise controlling atmospheric conditions within, the data centers.

---

<sup>5</sup> See Digital Realty’s patent application publication U.S. 2022/0163228 entitled “High Resolution Wide Range Pressure Sensor,” which, on information and belief, describes the use of pressure sensors by Digital Realty in its data centers.

For example, on information and belief, and before the expiration of the '284 Patent, Digital Realty operated cooling systems in its DFW11 and DFW26 Data Centers in this District (as well as in other data centers across the United States) in a manner that infringed the '284 Patent.

## **SECOND CLAIM**

### **(Infringement of the '682 Patent)**

29. Plaintiffs re-allege and incorporate herein by reference the foregoing paragraphs of the Complaint.

30. The '682 Patent is generally directed to systems and methods for controlling the temperature in a data center based on sensory data. Claim 1, for example, recites a “method of controlling the temperature in a data center.” Claim 1 further recites “receiving sensory data corresponding to a temperature from a subsystem in a data center.” Claim 1 further recites “processing the sensory data by a first agent in a hierarchy of agents to determine if the subsystems in the data center is operating within a predetermined temperature range.” Claim 1 further recites “adjusting a delivery rate for a cooling fluid using the first agent to keep the temperature range of the subsystem within the predetermined temperature range.” Claim 1 further recites “requesting a second agent from the hierarchy of agents to process the sensory data when the first agent cannot keep the temperature range within the predetermined temperature range unless the second agent redistributes the cooling fluid being delivered to one or more areas in the data center.”

31. On information and belief, Digital Realty practices every element of Claim 1 of the '682 patent.



32. For example, Digital Realty controls data center temperatures using multiple Trane RTAC chillers, as shown in the photograph of a Digital Realty data center below.<sup>6</sup>



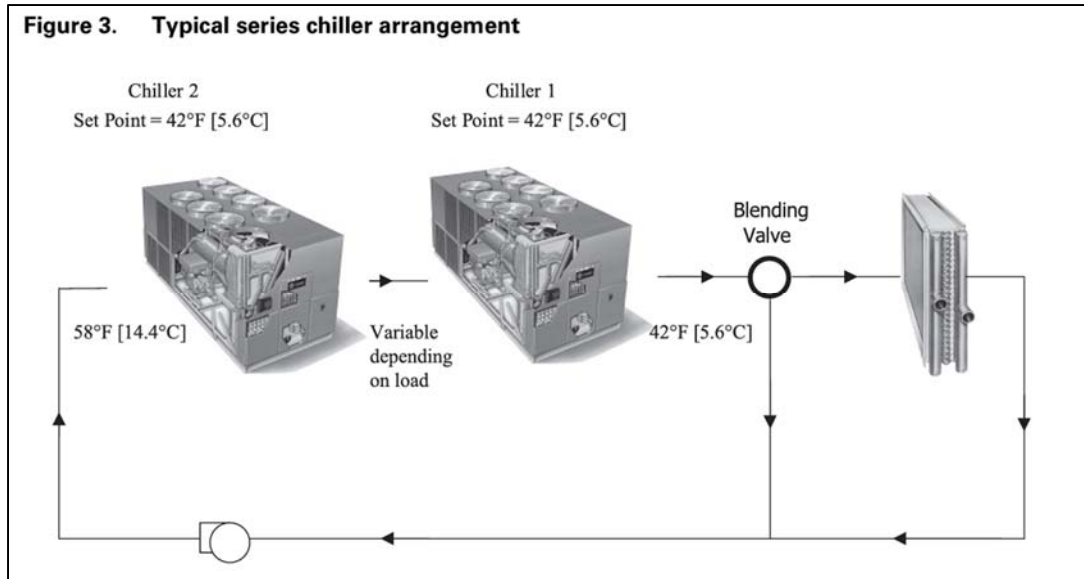
33. On information and belief, Digital Realty receives sensory data corresponding to a temperature from a subsystem in a data center. For example, Trane chillers receive data from “temperature control sensors.”<sup>7</sup>

34. On information and belief, Digital Realty processes the sensory data by a first agent in a hierarchy of agents to determine if the subsystems in the data center are operating within a predetermined temperature range. For example, the typical arrangement of Trane chillers comprises a first agent (e.g., Chiller 2) and a second agent (e.g., Chiller 1), as illustrated below.<sup>8</sup>

<sup>6</sup> Taken from <https://www.facebook.com/PrintersRowNoisePollution/>, a group documenting Digital Realty’s use of Trane RTAC chillers. *See also*, <https://drive.google.com/drive/folders/1v5netnh66xNU-4rwsMsZffR2IV5gZQ8v> (the group’s shared drive).

<sup>7</sup> Trane Product Catalog, [https://www.trane.com/content/dam/Trane/Commercial/global/products-systems/equipment/chillers/air-cooled/RLC-PRC006T-EN\\_04242020.pdf](https://www.trane.com/content/dam/Trane/Commercial/global/products-systems/equipment/chillers/air-cooled/RLC-PRC006T-EN_04242020.pdf).

<sup>8</sup> *Id.*



35. On information and belief, Digital Realty adjusts a delivery rate for a cooling fluid using the first agent to keep the temperature range of the subsystem within the predetermined temperature range. For example, “as system loads increase, the Chiller 2 becomes preferentially loaded as it attempt to meet the leaving chilled water setpoint.”<sup>9</sup>

36. On information and belief, Digital Realty requests a second agent (e.g., Chiller 1) from the hierarchy of agents to process the sensory data when the first agent (e.g., Chiller 2) cannot keep the temperature range within the predetermined temperature range. For example, “Chiller 1 will finish cooling the leaving water from Chiller 2 down to the system design setpoint.”<sup>10</sup>

37. Digital Realty has, under 35 U.S.C. § 271(a), directly infringed, literally and/or under the doctrine of equivalents, one or more claims, including without limitation at least claim 1 of the '682 Patent, by making, using, selling, offering for sale, and/or importing systems in its data centers for cooling the data centers. For example, on information and belief, and before the expiration of the '682 Patent, Digital Realty operated cooling systems in its DFW11 and DFW26

<sup>9</sup> *Id.*

<sup>10</sup> *Id.*

Data Centers in this District (as well as in other data centers across the United States) in a manner that infringed the '682 Patent.

### **THIRD CLAIM**

#### **(Infringement of the '547 Patent)**

38. Plaintiffs re-allege and incorporate herein by reference the foregoing paragraphs of the Complaint.

39. Digital Realty has been on notice of the '547 patent since at least March 29, 2024, when Valtrus identified it in a letter to Digital Realty.

40. The '547 Patent is generally directed to systems and methods for correlating vent tiles with racks based upon vent tile settings and rack inlet temperatures. Claim 1, for example, recites a “method for correlating vent tiles with racks based upon vent tile settings and rack inlet temperatures.” Claim 1 further recites “(a) setting the vent tiles to a first setting; (b) recording the first vent tile settings; (c) detecting temperatures at inlets of the racks; (d) closing one of the vent tiles to obtain second vent tile settings.” Claim 1 further recites “(e) repeating steps (b) and (c); and (f) correlating the vent tiles and the racks based upon the settings of the vent tiles and the temperatures detected at the first vent tile settings and the second vent tile settings.”

41. On information and belief, Digital Realty practices every element of Claim 1 of the '547 patent.

42. As one example, Digital Realty has advertised its use of EkkoSoft Critical for data center optimization.<sup>11</sup> Digital Realty has similarly encouraged its customers to use EkkoSoft Critical for data center optimization.<sup>12</sup>

---

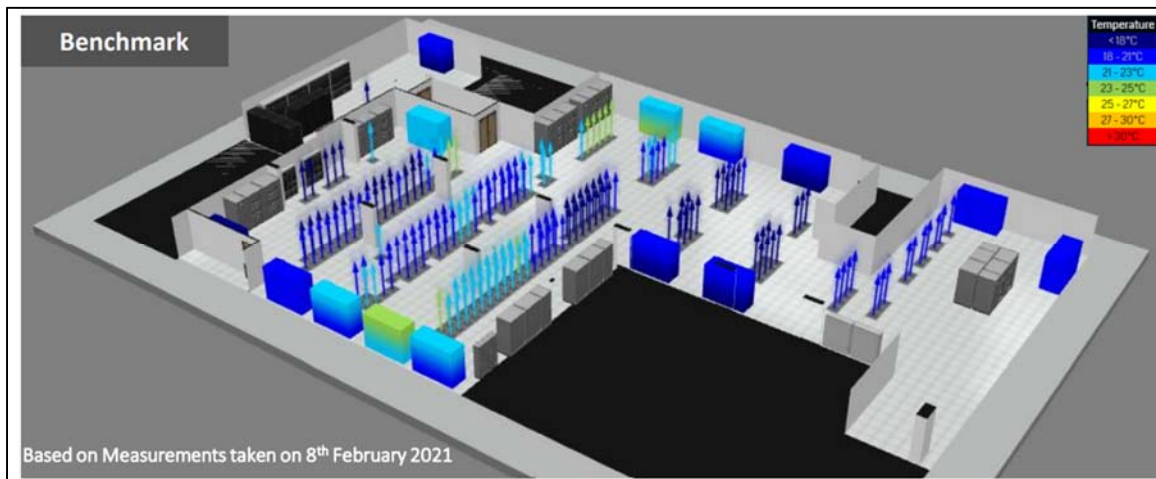
<sup>11</sup> See Digital Realty, Software Driven Optimization, <https://www.digitalrealty.com/resources/data-sheets/software-driven-optimization>.

<sup>12</sup> *Id.*

43. On information and belief, Digital Realty and/or its customers, use EkkoSoft Critical to aid in the operation of its data centers throughout the United States.

44. On information and belief, Digital Realty and/or its customers, with the help of EkkoSoft Critical, implement a method for correlating vent tiles with racks based upon vent tile settings and rack inlet temperatures.


45. For example, users of EkkoSoft Critical, including Digital Realty and/or its customers, set vent tiles to a first setting where specified tiles are in an open configuration as shown below.<sup>13</sup>



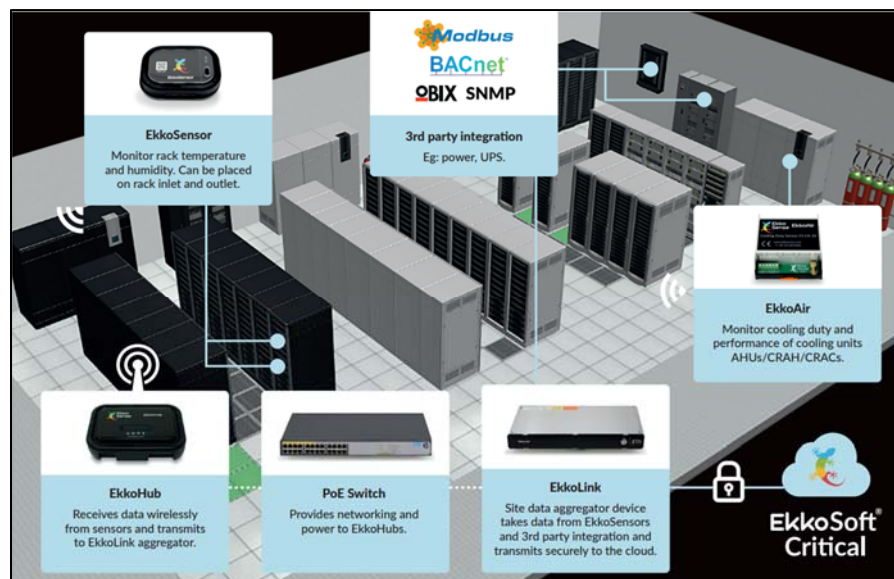
46. Users of EkkoSoft Critical, including Digital Realty and/or its customers, then record the first vent tile settings as shown below.<sup>14</sup>

<sup>13</sup> [https://cdn.shopify.com/s/files/1/0709/8653/1124/files/Ekkosense\\_-\\_Example\\_Report\\_-\\_Example\\_A\\_ANOM.pdf](https://cdn.shopify.com/s/files/1/0709/8653/1124/files/Ekkosense_-_Example_Report_-_Example_A_ANOM.pdf) at pp. 4.

<sup>14</sup> *Id* at 7.

<div>  <b>Data Centre Optimisation Report</b>            - Project Report –            yyy   XXX YYY   ABC Data Hall         </div>							
Activity Record (1 of 3)							
S.no	Stage	Date	Time Start	Change or Observation	Description of change/observation	Made by?	Company
2	Optimisation	08/02/2021	14:25	Change	Close vents 135 to 143 to 25%	JT	EkkoSense
3	Optimisation	08/02/2021	14:35	Change	Move Vent 103 (AC17) to AB18	JT	EkkoSense
4	Optimisation	08/02/2021	14:36	Change	Move Vent 104 (AC16) to AB17	JT	EkkoSense
5	Optimisation	08/02/2021	14:40	Change	Close vents 56 to vents 62 (Row F) to 25%	JT	EkkoSense
6	Optimisation	08/02/2021	15:04	Change	Close vents 188 to 191 (Row A) to 0%	JT	EkkoSense

47. Users of EkkoSoft Critical, including Digital Realty and/or its customers, then detect temperatures at inlets of the rack as shown below.<sup>15</sup>



48. Users of EkkoSoft Critical, including Digital Realty and/or its customers, then close one of the vent tiles to obtain second vent tile settings as shown below, where a red box has been added to highlight a tile that has been closed.<sup>16</sup>

<sup>15</sup> <https://techaccess.co.za/wp-content/uploads/2023/03/EkkoSense-brochure-TA-March-2023-PRESS.pdf>, at pp.15

<sup>16</sup> [https://cdn.shopify.com/s/files/1/0709/8653/1124/files/Ekkosense\\_-\\_Example\\_Report\\_-\\_Example\\_A\\_ANOM.pdf?v=1708606557](https://cdn.shopify.com/s/files/1/0709/8653/1124/files/Ekkosense_-_Example_Report_-_Example_A_ANOM.pdf?v=1708606557), at pp.4





49. Users of EkkoSoft Critical, including Digital Realty and/or its customers, then repeat the above steps and correlate the vent tiles and the racks based upon the settings of the vent tiles and the temperatures detected at the first vent tile settings and the second vent tile settings as shown below.<sup>17</sup>

Data hall floor vents supply airflow summary:	Benchmark	Post-optimisation
No. of vents	191 Nos.	191 Nos.
Average airflow	975m <sup>3</sup> /hr	675m <sup>3</sup> /h
Minimum Airflow	275m <sup>3</sup> /hr	75m <sup>3</sup> /h
Maximum Airflow	2050m <sup>3</sup> /hr	1675m <sup>3</sup> /h
Average Grill temperature	19°C	21.5°C
Note: Supply air vents plan layout at Benchmark and post-optimisation stage is given in the Appendix I & II		

50. Digital Realty has, under 35 U.S.C. § 271(a), directly infringed, literally and/or under the doctrine of equivalents, one or more claims, including without limitation at least claim 1 of the '547 Patent, by making, using, selling, offering for sale, and/or importing systems and

<sup>17</sup> *Id.*

methods for evaluating relationships between vent tiles and racks in its data centers. For example, on information and belief, Digital Realty has operated (and continues to operate) its DFW11 and DFW26 Data Centers in this District (as well as in other data centers across the United States) in a manner that infringed the '547 Patent.

51. Digital Realty also indirectly infringes the '547 patent under 35 U.S.C. § 271(b) and (c). Digital Realty intentionally induces others, including its customers, to directly infringe the '547 patent, and continues to do so, by, for example, selling and promoting the use of such infringing devices. Digital Realty has also contributed to the direct infringement by others of the '547 patent, including its customers, by supplying, with knowledge of the patent, a material part of a claimed invention, where the material part is not a staple article of commerce and is incapable of substantial noninfringing use.

52. To the extent Digital Realty has failed to stop its infringement after being placed on notice of the above, such infringement has been willful.

#### **PRAYER FOR RELIEF**

WHEREFORE, Plaintiffs pray for judgment against Digital Realty as follows:

- A. That Digital Realty has infringed each of the Asserted Patents, and unless enjoined, will continue to infringe one or more of the applicable Asserted Patents;
- B. That Digital Realty's infringement of one or more of the applicable Asserted Patents has been willful;
- C. That Digital Realty pay Plaintiffs' damages adequate to compensate Plaintiffs for Digital Realty's past infringement of each of the Asserted Patents, and present and future infringement of the applicable Asserted Patents, together with interest and costs under 35 U.S.C. § 284;

- D. That Digital Realty pay prejudgment and post-judgment interest on the damages assessed;
- E. That Digital Realty pay Plaintiffs enhanced damages pursuant to 35 U.S.C. § 284;
- F. That Digital Realty be enjoined from infringing the applicable Asserted Patents, or if its infringement is not enjoined, that Digital Realty be ordered to pay ongoing royalties to Plaintiffs for any post-judgment infringement of the applicable Asserted Patents;
- G. That this is an exceptional case under 35 U.S.C. § 285; and that Digital Realty pay Plaintiffs' attorneys' fees and costs in this action; and
- H. That Plaintiffs be awarded such other and further relief, including equitable relief, as this Court deems just and proper.

**DEMAND FOR JURY TRIAL**

Pursuant to Federal Rule of Civil Procedure 38(b), Plaintiffs hereby demands a trial by jury on all issues triable to a jury.

November 20, 2024

Respectfully submitted,

/s/ Eric H. Findlay

Matthew G. Berkowitz – LEAD ATTORNEY  
Aaron Morris  
Reichman Jorgensen Lehman & Feldberg LLP  
100 Marine Parkway, Suite 300  
Redwood Shores, CA 94065  
Tel: (650) 623-1401  
mberkowitz@reichmanjorgensen.com  
amorris@reichmanjorgensen.com

Connor S. Houghton  
Ariane S. Mann  
Reichman Jorgensen Lehman & Feldberg LLP  
1909 K Street NW, Suite 800  
Washington DC, 20006  
Tel: (202) 894-7310  
choughton@reichmanjorgensen.com  
amann@reichmanjorgensen.com



Eric Findlay (TX Bar No. 00789886)  
FINDLAY CRAFT, P.C.  
7270 Crosswater Avenue, Suite B  
Tyler, Texas 75703  
Tel: (903) 534-1100  
Fax: (903) 534-1137  
Email: [efindlay@findlaycraft.com](mailto:efindlay@findlaycraft.com)

*Attorneys for Plaintiffs*

**CERTIFICATE OF SERVICE**

I hereby certify that a copy of the foregoing document was filed electronically in compliance with Local Rule CV-5(a). Therefore, this document was served on all counsel who are deemed to have consented to electronic service on this XX day of XX, 2024.

/s/ DRAFT

DRAFT